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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,920	08/12/2004	Hungwen Jen	81098518 FCHM 0157 PUS	4919

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EXAMINER	
SMITH, JENNIFER A	

ART UNIT	PAPER NUMBER
1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/710,920	JEN ET AL.	
	Examiner	Art Unit	
	JENNIFER A. SMITH	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 October 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/12/2004, 08/30/2004, 10/28/2005, 10/31/2005,, 02/14/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

Claims 1-27 are presented for examination.

Information Disclosure Statements

The information disclosure statements (IDS) were submitted on 08/12/2004, 08/30/2004, 10/28/2005, 10/31/2005, and 02/14/2007. The submissions are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner. It is noted that in the IDS submitted on 08/30/2004, Foreign Patent Documents are incorrectly listed in the U.S. Documents Section of the form.

Claim Rejections - 35 USC § 112 – 2nd Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14-15 recite the limitation "the precious metal" in line 2 of the claims. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10-16, and 18-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Farnos et al. (US Patent No. 5,589,147).

In regard to claims 1-3, Farnos et al. (D1, hereafter) teaches a catalyst effective for the catalytic reduction of NO_x in an exhaust gas. The catalyst comprises a molecular sieve (conjugate base oxide) which has been mixed with a metal. [See Column 2, lines 38-45]. Alkali or alkaline earth metals are preferred to form the synthesized molecular sieve [See Column 9, lines 5-6]. Noble metals are preferred as the compound capable of altering the amount of chemical component in the exhaust [See Column 9, lines 36-37].

D1 does not specifically teach the conjugate base oxide of an inorganic acid with any specific K_a. However, this is an inherent characteristic of the conjugate base oxides

taught in D1. For example, D1 discloses using molecular sieve SAPO-11 [See Column 6, line 65]. SAPO-11 is a commercially available molecular sieve with 52 wt% P_2O_5 (acid anhydride of H_3PO_4). The specification defines "conjugate base oxide" is a conjugate base that has one or more bonds between oxygen and another element (i.e. conjugate base PO_4^{-3} bonded to P and O is P_2O_5). Applicant's use of the same material for the same function confirms that SAPO-11 has the same K_a values as required in the instant claims and therefore resists surface-area-reducing phase transitions.

In regard to claim 4, D1 teaches alkali or alkaline-earth metals including sodium, potassium, rubidium, cesium, magnesium, calcium, and barium [See Column 10, lines 6-8].

In regard to claim 5, For example, D1 teaches using molecular sieve SAPO-11 [See Column 6, line 65]. SAPO-11 is a commercially available molecular sieve with 52 wt% P_2O_5 (acid anhydride of H_3PO_4). The specification defines "conjugate base oxide" is a conjugate base that has one or more bonds between oxygen and another element (i.e. conjugate base PO_4^{-3} bonded to P and O is P_2O_5).

In regard to claims 6-7, D1 teaches the molecular sieve component is present from about 5-99 percent by weight of the dry composite [See Colum 9, line 2].

In regard to claims 8 and 10-11, D1 teaches preparing a wash coat by adding silica sol and water to the catalyst powder, mulling the mixture to form a slurry, and dipping the substrate (support) into the slurry [See Column 6, lines 21-24].

In regard to claim 12, D1 teaches supporting the catalyst on a support such as titania, zirconium, and silica [See Column 5, lines 24-25].

In regard to claim 13, D1 teaches the conjugated base acids are molecular sieves including SAPO-11, SAPO-17, SAPO-34, or SAPO-37 [See Column 6, lines 63-65].

In regard to claims 14-15, D1 teaches the noble metal platinum [See Column 9, line 38].

In regard to claim 16, D1 teaches metal oxides such as cerium dioxide or cerous oxide can be used in the invention [See Column 10, lines 2-3].

In regard to claim 18, D1 teaches a catalyst (NO_x trap) containing a molecular sieve (barium metal ions bonded to a conjugate base), a metal oxide (precious metal containing compound), and a carrier (substrate).

Furthermore, claims 19, 20, 21, and 22 contain the same limitations as claims 2, 3, 5, and 10, restively and are rejected for the reasons given above.

In regard to claims 24-27, D1 teaches a method for treating an exhaust gas using a catalyst. The coarsening resistant automotive exhaust catalyst and all of its limitations are disclosed in D1 and therefore D1 also anticipates the method of inhibiting coarsening in an automobile exhaust catalyst by using the disclosed catalyst.

Therefore, claims 1-8, 10-16, and 18-27 are anticipated by Farnos et al. (D1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farnos et al. (US Patent No. 5,589,147) in view of Cai et al. (US Patent Publication No. 2003/0139288 A1).

Farnos et al. (D1) teaches all of the limitations of claim 1 but fails to teach any explicit size required with regard to the conjugate base oxide particles.

Cai et al. (D2, hereafter) teaches a method of making a catalyst in which small catalyst particles are dispersed on the surface of larger catalyst carrier particles. More specifically, it relates to using a dry-coating process to coat nanometer-sized catalyst particles on the surface of larger catalyst carrier particles. The dry-coated catalyst particle/carrier particle composite mixture is then adapted for a catalyst application, such as in automotive exhaust gas treatment [See Page 1, Paragraph [0001]].

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to mill the conjugate bas oxides taught in D1 to a size range consistent with the teachings of D2 because D2 teaches that coating with nanosized particles yields high effective surface area of the catalyst particles on the catalyst carrier [See Page 1, Paragraph [0009]].

Therefore, claim 9 would have been obvious over Farnos et al. (D1) in view of Cai et al. (D2).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farnos et al. (US Patent No. 5,589,147) in view of Cuif (US Patent No. 5,747,401).

Farnos et al. (D1) teaches all the limitations of claim 16 but fails to teach the cerium oxide to be a mixed oxide.

Cuif (D3, hereafter) teaches mixed oxides of cerium and zirconium are used for many applications, including catalysts used in automotive catalytic converters

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to utilize the mixed oxides taught in D3 because they are known to improve catalytic function in exhaust gas treatment systems such as those taught in D1.

Therefore, claim 17 would have been obvious over Farnos et al. (D1) in view of Cuif (D3).

Conclusion

Claims 1-27 are rejected.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. SMITH whose telephone number is (571)270-3599. The examiner can normally be reached on Monday - Friday, 8:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/

Supervisory Patent Examiner, Art Unit 1793

Jennifer A. Smith
March 20, 2008
TC 1793

JS